

Dual operational amplifier

μ A747C

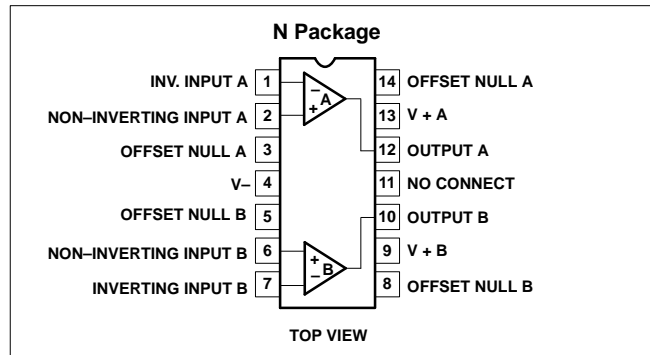
DESCRIPTION

The 747 is a pair of high-performance monolithic operational amplifiers constructed on a single silicon chip. High common-mode voltage range and absence of "latch-up" make the 747 ideal for use as a voltage-follower. The high gain and wide range of operating voltage provides superior performance in integrator, summing amplifier, and general feedback applications. The 747 is short-circuit protected and requires no external components for frequency compensation. The internal 6dB/octave roll-off insures stability in closed-loop applications. For single amplifier performance, see μ A741 data sheet.

FEATURES

- No frequency compensation required
- Short-circuit protection
- Offset voltage null capability
- Large common-mode and differential voltage ranges
- Low power consumption
- No latch-up

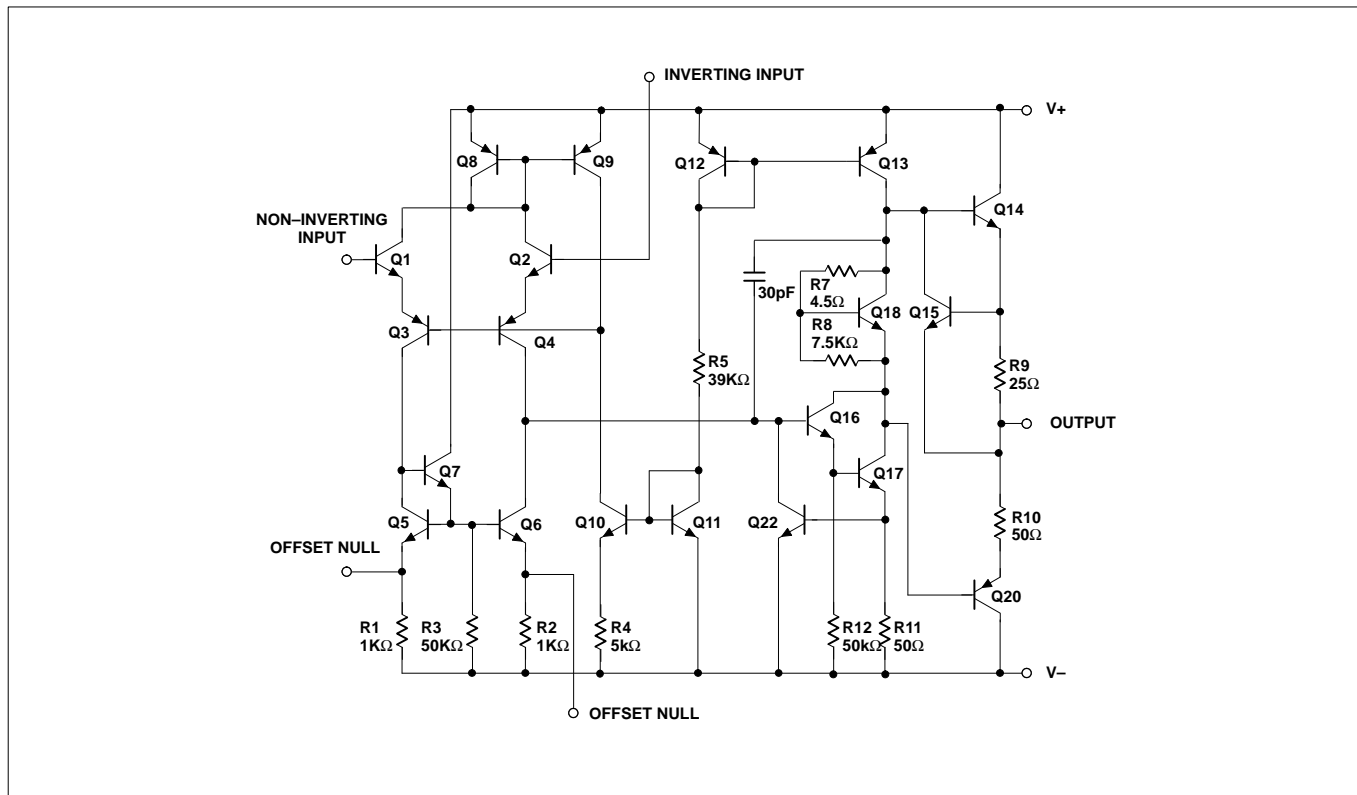
PIN CONFIGURATION



ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE	DWG #
14-Pin Plastic DIP	0°C to 70°C	μ A747CN	0405B

EQUIVALENT SCHEMATIC



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ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V _S	Supply voltage	±18	V
P _{D MAX}	Maximum power dissipation T _A =25°C (still air) ¹	1500	mW
V _{IN}	Differential input voltage	±30	V
V _{IN}	Input voltage ²	±15	V
	Voltage between offset null and V-	±0.5	V
T _{STG}	Storage temperature range	-65 to +150	°C
T _A	Operating temperature range	0 to +70	°C
T _{SOLD}	Lead temperature (soldering, 10sec)	300	°C
I _{SC}	Output short-circuit duration	Indefinite	

NOTES:

- Derate above 25°C at the following rates:
N package at 12mW/°C
- For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

DC ELECTRICAL CHARACTERISTICS

T_A=25°C, V_{CC} = ±15V unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	μ A747C			UNIT
			Min	Typ	Max	
V _{OS}	Offset voltage	R _S ≤ 10kΩ		2.0	6.0	mV
		R _S ≤ 10kΩ, over temp.		3.0	7.5	mV
Δ V _{OS} /ΔT				10		μV/°C
I _{OS}	Offset current			20	200	nA
		Over temperature		7.0	300	nA
Δ I _{OS} /ΔT				200		pA/°C
I _{BIAS}	Input current			80	500	nA
		Over temperature		30	800	nA
Δ I _B /ΔT				1		nA/°C
V _{OUT}	Output voltage swing	R _L ≥ 2kΩ, over temp.	±10	±13		V
		R _L ≥ 10kΩ, over temp.	±12	±14		V
I _{CC}	Supply current each side			1.7	2.8	mA
		Over temperature		2.0	3.3	mA
P _d	Power consumption			50	85	mW
		Over temperature		60	100	mW
C _{IN}	Input capacitance			1.4		pF
	Offset voltage adjustment range			±15		mV
R _{OUT}	Output resistance			75		Ω
	Channel separation			120		dB
PSRR	Supply voltage rejection ratio	R _S ≤ 10kΩ, over temp.		30	150	μV/V
A _{VOL}	Large-signal voltage gain (DC)	R _L ≥ 2kΩ, V _{OUT} = ±10V	25,000			V/V
		Over temperature	15,000			V/V
CMRR	Common-mode rejection ratio	R _S ≤ 10kΩ, V _{CM} = ±12V Over temperature	70			dB

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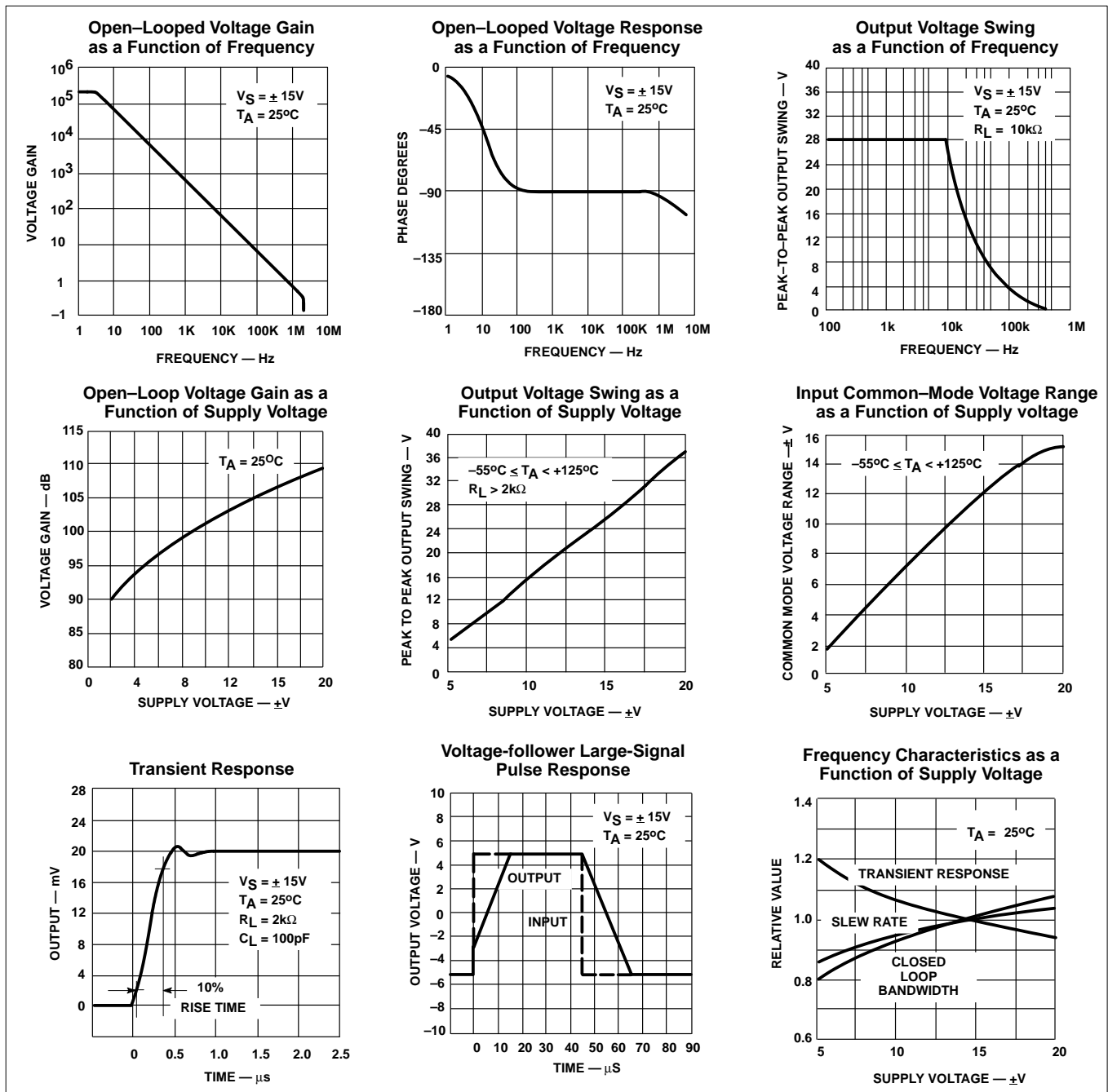
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AC ELECTRICAL CHARACTERISTICS

$T_A=25^{\circ}\text{C}$, $V_S = \pm 15\text{V}$ unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	μA747C			UNIT
			Min	Typ	Max	
t_r	Transient response	$V_{IN}=20\text{mV}$, $R_L=2\text{k}\Omega$, $C_L<100\text{pF}$ Unity gain $C_L\leq 100\text{pF}$ Unity gain $C_L\leq 100\text{pF}$		0.3		μs
	Rise time			5.0		%
SR	Slew rate	$R_L>2\text{k}\Omega$		0.5		$\text{V}/\mu\text{s}$

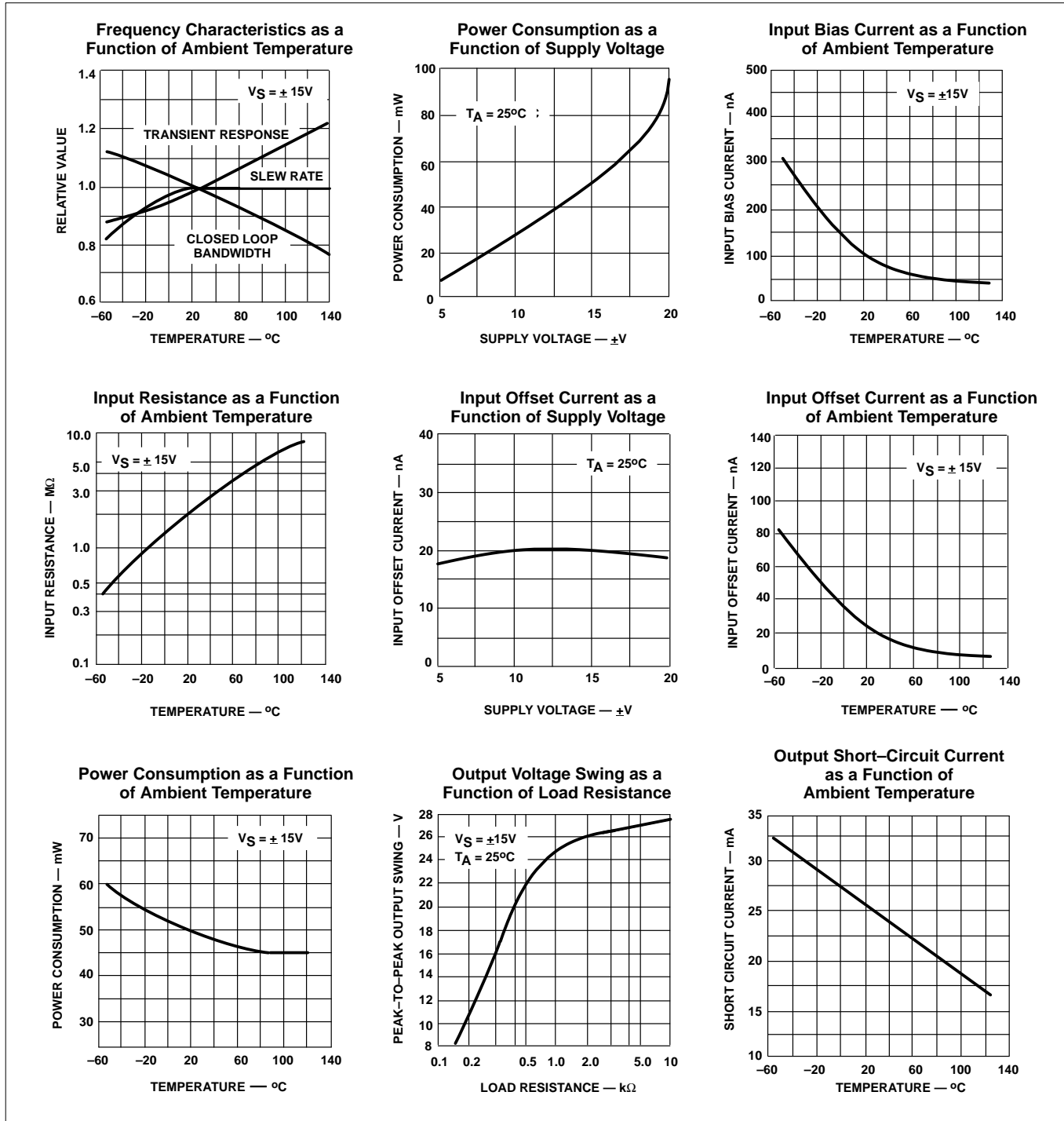
TYPICAL PERFORMANCE CHARACTERISTICS



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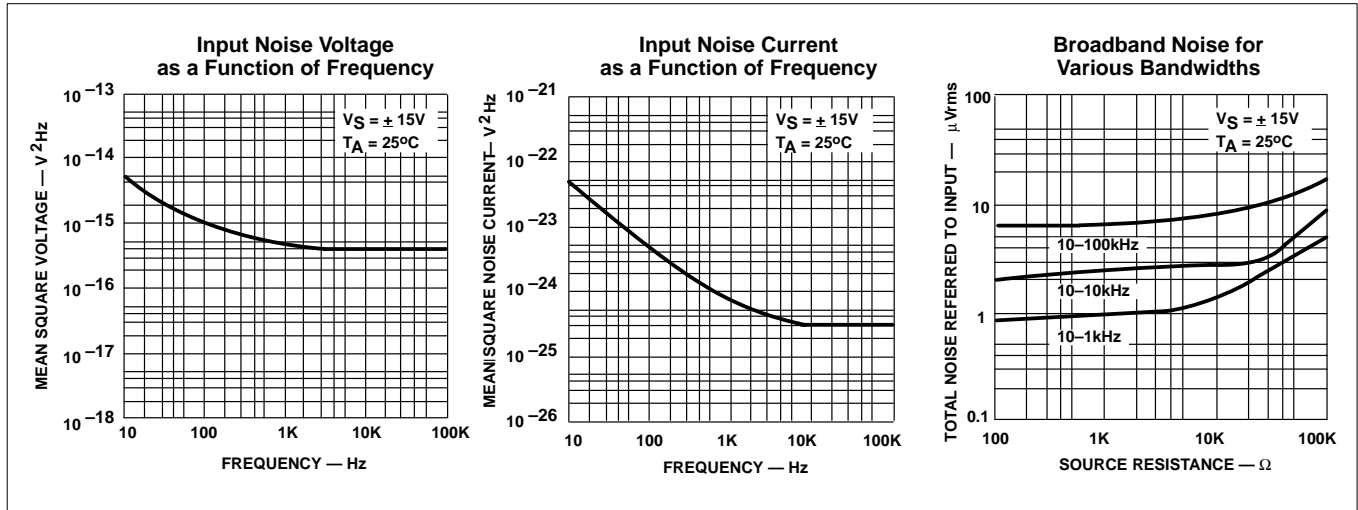
TYPICAL PERFORMANCE CHARACTERISTICS (Continued)



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TYPICAL PERFORMANCE CHARACTERISTICS (Continued)



TEST CIRCUITS

